DOCUMENT RESUME

ED 459 351 CE 082 730

AUTHOR	McClure, David L.
TITLE	Human Capital: Attracting and Retaining a High-Quality Information Technology Workforce. Testimony before the Subcommittee on Technology and Procurement Policy, Committee on Government Reform, U.S. House of Representatives.
INSTITUTION	General Accounting Office, Washington, DC.
REPORT NO	GAO-02-113T
PUB DATE	2001-10-04
NOTE	24p.
AVAILABLE FROM	U.S. General Accounting Office, P.O. Box 6015, Gaithersburg, MD 20884-6015 (first copy, free; additional copies, $2 each). For full text: http://www.gao.gov/new.items/d02113t.pdf.
PUB TYPE	Legal/Legislative/Regulatory Materials (090) -- Reports - Evaluative (142)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Change Strategies; Data Processing; Definitions; Education Work Relationship; Employment Practices; Employment Problems; Federal Government; *Government Employees; *Human Capital; Information Management; Information Processing; Information Science; *Information Technology; Labor Economics; Labor Force; *Labor Force Development; Labor Needs; *Labor Turnover; Needs Assessment; Organizational Change; Personnel Management; Policy Formation; Professional Training; Public Agencies; Public Policy; Public Sector; *Recruitment; Strategic Planning; Trend Analysis; Work Environment
IDENTIFIERS	Computer Related Occupations

ABSTRACT

The General Accounting Office examined the problem of attracting and retaining a high-quality information technology (IT) workforce in federal government agencies. The problem was traced to a longstanding lack of effective leadership and management and lack of a strategic approach to marshaling, managing, and maintaining the human capital needed for the government to discharge its responsibilities and delivery on its promises. An analysis of the current state and likely future of the IT field yielded the following findings: (1) rapid changes in IT require a skilled and well-managed workforce; (2) the demand for skilled IT workers remains substantial; (3) agencies are making limited progress in addressing IT human capital issues; and (4) agency reliance on contracted IT services requires improved oversight capabilities. The following actions for addressing IT human capital problems were recommended: (1) assess the knowledge and skills needed to effectively perform IT operations to support agency missions and goals; (2) inventory current IT staff members' knowledge and skills to identify gaps in needed capabilities; (3) develop strategies and implement plans for hiring, training, and professional development to fill identified gaps; and (4) evaluate program and use the evaluation results to continuously improve the organization's human capital strategies. (Contains 34 references.) (MN)

Reproductions supplied by EDRS are the best that can be made
from the original document.

CE

United States General Accounting Office

GAO

Testimony
Before the Subcommittee on Technology and Procurement Policy
Committee on Government Reform, U.S. House of Representatives

ED 459 351

For Release on Delivery
Expected at 2:00 EDT
Thursday, October 4, 2001

HUMAN CAPITAL

Attracting and Retaining a High-Quality Information Technology Workforce

Statement of David L. McClure
Director, Information Technology Management Issues

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

BEST COPY AVAILABLE

G A O
Accountability * Integrity * Reliability

CE062730

Mr. Chairman and Members of the Subcommittee:

I appreciate the opportunity to discuss with you this afternoon the federal government's strategic management challenges in the area of human capital, particularly regarding the information technology workforce. Few management tasks facing federal agencies are more critical to their ability to serve the nation than attracting, retaining, and motivating people. As our society has transitioned from the industrial age to the knowledge age, organizations have come to recognize people as their most critical assets. Because people create knowledge and put it to practical use, the success or failure of federal agencies, like that of other organizations, depends on having the right number of people with the right mix of knowledge and skills. This is especially true in the information technology (IT) area, where widespread shortfalls in human capital have contributed to shortfalls in agency and program performance.

In previous testimony, we have presented our recommended three-stage approach to human capital reform.[1] First, in the near term, agencies can improve their human capital management by taking advantage of the authorities already available to them under current laws and regulations. Second, the Administration and the Congress should consider legislation to allow agencies more flexibility and give them new tools to attract, retain, and motivate employees—both overall and in critical occupations such as those in IT. Third, all interested parties should work together to determine further, possibly more comprehensive human capital reforms.

In my remarks today, I will

- discuss why we view strategic human capital management as an area of high risk, particularly in light of expected long-term demand for a skilled IT workforce;
- summarize the progress of agencies in addressing IT human capital needs;
- describe the consistency between suggestions we have raised in prior testimonies and those provided in a recent report on federal IT human

[1] *Human Capital: Taking Steps to Meet Current and Emerging Human Capital Challenges* (GAO-01-965T, July 2001).

capital needs issued by the National Academy of Public Administration;[2] and

- highlight some important challenges that must be addressed in moving IT human capital reform from proposals to implementation.

Background

We at GAO use the term *human capital* because (unlike traditional terms such as *personnel* and *human resource management*) it focuses on two principles that are critical in a modern, results-oriented management environment:

- First, people are assets whose value can be enhanced through investment. As the value of people increases, so does the performance capacity of the organization and therefore its value to clients and other stakeholders. As with any investment, the goal is to maximize value while managing risk.
- Second, an organization's human capital approaches must be aligned to support the mission, vision for the future, core values, goals and objectives, and strategies by which the organization has defined its direction and its expectations for itself and its people. An organization's human capital policies and practices should be designed and implemented to achieve these goals, and assessed accordingly.

Strategic Human Capital Management Is an Area of High Risk

In January 2001, we added strategic human capital management to our list of federal programs and operations identified as high risk.[3] However, we stress that federal employees are not the problem; rather, the problem is a long-standing lack of effective leadership and management, along with the lack of a strategic approach to marshaling, managing, and maintaining the human capital needed for government to discharge its responsibilities and deliver on its promises. As the federal government struggles with the impact of more than a decade of government downsizing and curtailed investments in people, it is increasingly clear that today's federal human

[2] *The Transforming Power of Information Technology: Making the Federal Government an Employer of Choice for IT Employees* (National Academy of Public Administration, Aug. 2001).

[3] *High-Risk Series: An Update* (GAO-01-263, Jan. 2001). In addition, see *Human Capital: Meeting the Governmentwide High-Risk Challenge* (GAO-01-357T, Feb. 2001).

capital strategies are not appropriate to meet the needs of the nation's government and its citizens.

Rapid Changes in Information Technology Require a Skilled and Well-Managed Workforce

As agencies wrestle with human capital management, they face a significant challenge in the information management and technology areas. The rapid pace of technological change in these areas is reflected in the investments in information technologies made both in the United States as a whole and by the federal government. By 2004, information technology investments are expected to account for more than 40 percent of all capital investment in the United States. The federal government's IT investment is conservatively estimated in fiscal year 2002 to be $44 billion—an increase in federal IT spending of 8.6 percent from fiscal year 2000.[4]

This substantial investment should provide opportunities for increasing productivity and decreasing costs. For example, the public sector is increasingly turning to the Internet to conduct paperless acquisitions, provide interactive electronic services to the public, and tailor or personalize information. As we testified in July, there are over 1,300 electronic government initiatives throughout the federal government, covering a wide range of activities involving interaction with citizens, business, other governments, and government employees.[5] In addition, the Government Paperwork Elimination Act (GPEA) of 1998 requires that by October 21, 2003, federal agencies provide the public (when practicable) the option of submitting, maintaining, and disclosing required information electronically. We have found that agencies plan to provide an electronic option for 3,048 eligible activities by the GPEA deadline.[6]

Demand for Skilled IT Workers Remains Substantial

Despite a decrease in projected demand over the last year, the overall estimated demand for IT workers remains high. Notwithstanding the recent economic slowdown, employers from every sector, including the federal government, are still finding it difficult to meet their needs for highly skilled IT workers. The Bureau of Labor Statistics projects that the demand for computer systems analysts, engineers, and scientists will

[4] Published data from agency Exhibit 53s (as required by OMB Circular A-11), *Clinger-Cohen Act Report on Federal Information Technology (IT) Investments* (Apr. 9, 2001).

[5] *Electronic Government: Challenges Must Be Addressed With Effective Leadership and Management* (GAO-01-959T, July 2001).

[6] *Electronic Government: Better Information Needed on Agencies' Implementation of the Government Paperwork Elimination Act* (GAO-01-1100, Sep. 2001).

almost double between 1998 and 2008, and the demand for computer programmers will increase by 30 percent during the same time period.[7]

In April 2001, the Information Technology Association of America (ITAA) released a study on the size of the private-sector IT workforce, the demand for qualified workers, and the gap between the supply and demand.[8] Among the study's findings were the following:

- Information technology employment directly accounts for approximately 7 percent of the nation's total workforce. Over 10.4 million people in the United States are IT workers, an increase of 4 percent over the 10 million reported for last year.

- Overall estimated demand for IT workers is down from last year's forecast (by 44 percent), partially because of the slowdown in the high-tech sector and the economy in general. However, the demand for IT workers remains high, as employers attempt to fill over 900,000 new IT jobs in 2001. Hiring managers reported an anticipated shortfall of 425,000 IT workers in 2001 because of a lack of applicants with the requisite technical and nontechnical skills.

The ITAA also reported that despite softening in overall demand, skills in technical support, database development/administration, programming/software engineering, web development/administration, and network design/administration remain most in demand by IT and non-IT companies alike. These positions represent nearly 86 percent of the demand for IT workers expected in 2001. The study further notes that the demand for enterprise systems professionals and network designers and administrators is expected to increase by 62 and 13 percent, respectively, over the 2000 forecast.

[7] "The 1998–2008 Job Outlook in Brief," *Occupational Outlook Quarterly* (Bureau of Labor Statistics, Spring 2000).

[8] *When Can You Start? Building Better Information Technology Skills and Careers* (Information Technology Association of America, Apr. 2001).

Agencies Are Making Limited Progress in Addressing IT Human Capital Issues

For the IT workforce in particular, agencies are beginning to take action by initiating strategies and plans to attract, retain, and/or train skilled workers. Nevertheless, much remains to be done, as agencies generally lack comprehensive strategies for IT human capital management.

To date, we have issued several products on IT human capital management, including studies of practices at four agencies: the Small Business Administration, the United States Coast Guard, the Social Security Administration, and the Centers for Medicare and Medicaid Services.[9] These evaluations focused on agency practices needed to maintain and enhance the capabilities of IT staff. These practices fall in four key areas:

- **Requirements**—assessing the knowledge and skills needed to effectively perform IT operations to support agency mission and goals
- **Inventory**—determining the knowledge and skills of current IT staff so that gaps in needed capabilities can be identified
- **Workforce strategies and plans**—developing strategies and implementing plans for hiring, training, and professional development to fill the gap between requirements and current staffing
- **Progress evaluation**—evaluating progress made in improving IT human capital capability, and using the results of these evaluations to continuously improve the organization's human capital strategies

In July, we reported that agencies' progress in addressing IT human capital strategies had been sluggish.[10] Specifically, we stated that although agencies were initiating strategies and plans to attract, retain, and/or train a skilled IT workforce, key issues in each of the four areas mentioned above were not being effectively addressed.

[9] *Information Technology Management: SBA Needs to Establish Policies and Procedures for Key IT Processes* (GAO/AIMD-00-170, May 2000); *Information Technology Management: Coast Guard Practices Can Be Improved* (GAO-01-190, Dec. 2000); *Information Technology Management: Social Security Administration Practices Can Be Improved* (GAO-01-961, Aug. 2001); and *Medicare: Information Systems Modernization Needs Stronger Management and Support* (GAO-01-824, Sep. 2001).

[10] *Human Capital: Building the Information Technology Workforce to Achieve Results* (GAO-01-1007T, July 2001).

In the area of requirements, several of the agencies we reviewed had begun evaluating their short and longer term IT needs. However, none of them had completed these efforts. For instance, we found that the Small Business Administration did not have any policies or procedures to identify requirements for IT skills. Also, although the U.S. Coast Guard had conducted an assessment of the knowledge and skills needed by its IT officers and enlisted personnel, it had not done so for its civilian workforce.

Although an IT inventory identifying the knowledge and skills of current staff is essential to uncovering gaps between current staff and requirements, our work to date has revealed that none of the reviewed agencies had a complete knowledge and skills inventory. For example, the U.S. Coast Guard and the Small Business Administration maintained a limited amount of information on IT knowledge and skills, and the Social Security Administration lacked an IT-specific knowledge and skills inventory.

In addition to establishing requirements and creating an inventory, an agency needs to develop a workforce plan that is linked to its strategic and program planning efforts. The workforce plan should identify its current and future human capital needs, including the size of the workforce, its deployment across the organization, and the knowledge, skills, and abilities needed for the agency to pursue its shared vision. The workforce planning strategy should specifically outline the steps and processes that an agency should follow when hiring, training, and professionally developing staff to fill the gap between requirements and current staffing. Among the four agencies we reviewed, none had developed comprehensive IT-specific workforce strategies or plans. For example, although the Social Security Administration did have a broad workforce transition plan that includes actions to improve its processes (for projecting workforce needs, for recruiting, and for training and developing employees), these actions were not specific to IT staff.

Finally, meaningful progress evaluation systems are necessary to determine whether agency human capital efforts are effective and to ensure that the results of these evaluations are used to make improvements. While agencies we reviewed did track various human capital efforts, such as progress in filling IT positions, none of the agencies had fully analyzed or reported on the effectiveness of their workforce strategies and plans.

Shortcomings in IT human capital management have serious ramifications. Without complete assessments of requirements, agencies will lack assurance that they have identified the number of staff and the specific knowledge and skills needed or that they have developed strategies to fill these needs. Also, without an inventory of knowledge and skills, agencies will not have assurance that they are optimizing the use of their current IT workforce, nor will they have data on the extent of skill gaps. This information is necessary for developing effective workforce strategies and plans. If they cannot analyze and document the effectiveness of workforce strategies and plans, senior decisionmakers will lack assurance that they are effectively addressing knowledge and skill gaps.

Agency Reliance on Contracted IT Services Requires Improved Oversight Capabilities

Judging from trends, the shortage of qualified IT professionals is likely to lead to greater reliance on contracted workers, so that agencies can supplement their existing workforces with external expertise. Indeed, from fiscal year 1990 to 2000, federal spending on contracted IT services increased from $3.7 billion to about $13.4 billion.

Relying on contracting to fill workforce gaps is not a panacea. We have previously reported that some procurements of services are not being done efficiently, putting taxpayer dollars at risk.[11] In particular, agencies were not clearly defining their requirements, fully considering alternative solutions, performing vigorous price analyses, or adequately overseeing contractor performance. Also, agencies appear to be at risk of not having enough of the right people with the right skills to manage service procurements. Following a decade of downsizing and curtailed investments in human capital, federal agencies currently face skills, knowledge, and experience imbalances that, without corrective action, will worsen, especially in light of the numbers of federal workers becoming eligible to retire in the coming years. Consequently, a key question we face in the federal government is whether we have today, or will have tomorrow, the ability to acquire and manage the procurement of the increasingly sophisticated services that the government needs.

As we recently testified,[12] past efforts at workforce reduction were not always oriented toward shaping the makeup of the force. For example, the

[11] *Contract Management: Trends and Challenges in Acquiring Services* (GAO-01-753T, May 2001).

[12] *Human Capital: Major Human Capital Challenges at the Departments of Defense and State* (GAO-01-565T, Mar. 2001).

Department of Defense (DOD) found that its workforce reductions had led to a serious shortfall in the acquisition workforce. To improve the efficiency of contracting operations—and in part to help offset the effects of this shortfall—the department instituted streamlined acquisition procedures. However, the DOD Inspector General reported that the efficiency gains from the streamlined procedures had not kept pace with acquisition workforce reductions. The Inspector General reported that while the workforce had been reduced by half, DOD's contracting workload had increased by about 12 percent[13] and that senior personnel at 14 acquisition organizations believed that workforce reductions had led to such problems as less contractor oversight.

Unless these reductions in the acquisition workforce are addressed, they could undermine the government's ability to efficiently acquire contract services, including IT services.

Recommendations Regarding IT Human Capital Have Been Consistent

The challenges facing the government in maintaining a high-quality IT workforce are long-standing and widely recognized. As far back as 1994, our study of leading organizations revealed that strengthening the skills of IT professionals is a critical aspect of strategic information management.[14] Specifically, leading organizations identify existing IT skills and needed future skills, as well as determining the right skill mix. Accordingly, we suggested that executives should systematically identify IT skill gaps and targets and integrate skill requirements into performance evaluations. In our more recent study of public and private sector efforts to build effective Chief Information Officer (CIO) organizations,[15] we found that leading organizations develop IT human capital strategies to assess their skill bases and recruit and retain staff who can effectively implement information technology to meet business needs.

The federal CIO Council has been actively studying issues related to IT human capital, focusing on the government's ability to attract, retain, and train a qualified workforce. To examine the magnitude of federal IT human

[13] *DOD Acquisition Workforce Reduction Trends and Impacts* (Office of the Inspector General, Department of Defense, Feb. 29, 2000).

[14] *Executive Guide: Improving Mission Performance Through Strategic Information Management and Technology* (GAO/AIMD-94-115, May 1994).

[15] *Maximizing the Success of Chief Information Officers: Learning from Leading Organizations* (GAO-01-376G, Feb. 2001).

capital challenges and suggest possible solutions, the CIO Council asked the National Academy of Public Administration (NAPA) to study IT compensation strategies and to make recommendations on how the government can best compete for IT talent.[16]

NAPA's resulting study noted a number of problems inherent in the federal government's human resource management system. These problems included a pay gap with the private sector and a compensation system that is overly focused on internal equity. The study commented that current pay disparities with the private sector, overly narrow pay ranges, and the inadequacy of special pay rates hinder the government's ability to compete for IT workers. Regarding compensation, the study noted that the current system is closely aligned with internal equity by law, regulation, and practice, with little real attention paid to external equity and contribution equity.[17] According to the study, private sector organizations typically consider and establish a strategic balance among internal, external, and contribution equity in determining pay rates and reward structures.

NAPA's study also includes an evaluation of two alternative compensation models. The first of these makes limited changes to the current General Schedule (GS) system, such as eliminating steps and combining some grades. The second is a market-based model that introduces more comprehensive reforms, including increased emphasis on performance and competencies. NAPA's study concluded that the second model embodies the best approach to human capital reform. NAPA's recommendations are shown in table 1.

[16] *The Transforming Power of Information Technology: Making the Federal Government an Employer of Choice for IT Employees* (National Academy of Public Administration, Aug. 2001).

[17] In an internal equity system, pay is determined by the relative value of each job within an organization. External equity is based on a comparison with similar jobs throughout the labor market. Contribution equity is based on an employee's performance and contribution relative to other employees.

Table 1: NAPA Recommendations

NAPA recommendation	Description
Establish a market-based, pay-for-performance compensation system.	This compensation approach would establish broad pay ranges, tie base pay to market rates, and link increases in pay to competencies and results to attract and retain IT talent.
Allow for flexibility in the treatment of individuals and occupations.	The new compensation system would ensure that managers have the flexibility to pay individual workers for their respective skills and competencies as well as their contributions to the organization.
Improve recruiting and hiring processes.	The new compensation system for IT professionals needs to be linked to faster, enhanced recruitment and hiring processes.
Balance the three dimensions of equity.	A new federal IT compensation system would provide a better balance among internal equity (that is, equity among government jobs), external equity (between jobs in the government and in other sectors), and contribution equity (among individual employees).
Offer competitive benefits.	The new system would offer a more competitive benefits package for senior technical employees as well as executives.
Promote work/life balance programs.	Federal managers and human resources specialists must actively market work/life benefits and programs so that potential IT workers are aware of them.
Encourage management ownership.	Managers must (1) actively participate in the design and implementation of agency-specific features of the new system, (2) be rewarded for effectively implementing and managing the system, and (3) be held accountable for not carrying out their management responsibilities.
Support technical currency and continuous learning.	Agency management should design and support developmental activities such as formalized training, on-the-job training, computer-assisted learning, self-instructional guides, coaching, and other approaches.
Build in reliability, clarity, and transparency.	Agency budgets and management decisions must support full implementation of the new system. The new system must be reliable, meaning that it consistently conforms with policies so that the same set of circumstances always leads to a fair decision and result.

Although we have not analyzed all aspects of these recommendations, many of them are consistent with suggestions we have made in prior testimonies,[18] as well as with the practices that we have instituted in our own internal human capital management. For example, we have suggested that government pay systems should be based on performance and contributions rather than on longevity. Similarly, in our own human capital management at GAO, we have implemented pay for performance and are developing a competency-based evaluation system. We have also suggested that government employers use more flexible approaches to setting pay; in our own human capital management system, we have instituted broad pay bands for mission staff. More examples are given in table 2, which compares the NAPA recommendations with related suggestions we have made in previous work and practices we have adopted within GAO.

Table 2: Comparison of NAPA Recommendations with GAO Suggestions and Current Practices

NAPA recommendations	GAO suggestions/practices	
	GAO suggestions	GAO's own practices
Establish a market-based, pay-for-performance compensation system.	• Provide authority to establish Senior Level positions. • Address pay compression between the maximum and lower SES pay levels, perhaps by delinking federal executive compensation from congressional pay, or by raising the cap on executive performance bonuses.[a]	• Established Senior Level positions to meet certain scientific, technical, and professional needs. • Established pay for performance system. • Developing a competency model/competency-based appraisal system. • Offering pay bonuses to attract and retain workers for hard-to-fill positions, such as IT positions requiring specific technical skill sets.
Allow for flexibility in the treatment of individuals and occupations.	• Provide more flexible pay approaches. • Revise Reduction in Force (RIF) rules.[a] • Provide authority to offer voluntary early retirement.[a] • Provide authority to offer voluntary separation incentives.[a] • Pursue phased retirement approaches, whereby federal employees with needed skills could change from full-time to part-time employment and receive a portion of their federal pension while still earning pension credits.[a]	• Using broadbanding system for mission staff. • Revised Reduction in Force (RIF) rules. • Have authority to offer voluntary early retirement. • Have authority to offer voluntary separation incentives.

[18] *Human Capital: Taking Steps to Meet Current and Emerging Human Capital Challenges* (GAO-01-965T, July 2001); *Human Capital: Managing Human Capital in the 21st Century* (GAO/T-GGD-00-77, Mar. 2000); *Human Capital: Meeting the Governmentwide High-Risk Challenge* (GAO-01-357T, Feb. 2001); *Human Capital: Building the Information Technology Workforce to Achieve Results* (GAO-01-1007T, July 2001).

NAPA recommendations	GAO suggestions/practices	
	GAO suggestions	GAO's own practices
Improve recruiting and hiring processes.	• Improve the federal hiring system. • Authorize agencies to use appropriated funds for selective recruiting, recognition, and team building activities.[a] • Provide more hiring flexibility in such fields as information technology, where there is severe competition with other sectors for talent. • Use enabling technology to improve hiring processes.	• Using a 25-percent pay differential (equal to the OPM pay differential for executive branch IT hires) to bring aboard entry-level IT staff. • Using noncompetitive hiring authority (e.g., internship program, critical skills program). • Enhancing our Applicant Tracking System and exploring Web-based recruitment services to advertise vacancies, receive and process applications, and support recruitment targeted for specific skills.
Balance the three dimensions of equity.		
Offer competitive benefits.	• Provide flexible "cafeteria" benefits such as those available to many private sector workers under Section 125 of the Internal Revenue Service Code.[a] • Allow employees who travel on government business to keep their "frequent flyer" miles.[a] • Institute phased retirement, allowing federal employees with needed skills to change from full-time to part-time employment and receive a portion of their federal pension while still earning pension credits.[a]	• Implemented recognition and awards program. • Pay commuting subsidies (pending). • Establish college loan repayment fund (pending).
Promote work/life balance programs.		• Implemented Flexitime and Flexiplace. • Established business casual dress. • Established a day-care facility. • Established a fitness center.
Encourage management ownership.	• Improve employee accountability. • Establish performance management systems that assess and reward employee performance in light of organizational goals and values.	• Establishing a competency-based appraisal system that underscores agency goals and values, which are linked to the agency strategic plan.
Support technical currency and continuous learning.	• Enhance career development and training, and promote continuous learning. • Authorize agencies to use appropriated funds to pay for selected professional certifications, licensing, and professional association costs.[a] • Establish fellowships with the private sector, particularly in critical occupations.[a]	• Making use of contractor resources in the IT area to supplement both the numbers and skills of government employees. • Transitioning from traditional classroom training to an approach that balances classroom training with online training delivered at the desktop, as well as other learning experiences.
Build in reliability, clarity, and transparency.	• Perform workforce and succession planning. • Create mission and vision statements. • Develop strategic planning and performance measurement processes. • Align human capital policies and practices with organizational missions and core values. • Use teams, including "just-in-time" and "virtual" teams.	Implemented the following: • Human capital self-assessment checklist • Human capital profile/planning • Employee feedback survey and suggestion program • Employee Advisory Council • Enhanced employee communications/participation • Skill/knowledge inventory • Employee preference survey

[a] Legislative action is required to permit this practice.

As noted in table 2, we have identified and made use of a variety of tools and flexibilities to address our human capital challenges; some of these were made available to us through the GAO Personnel Act of 1980 and some through legislation passed by the Congress in 2000, but most are available to all federal agencies. Figure 1 shows those flexibilities that were made available to us through legislation.

Figure 1: Legislative Flexibilities Used to Address GAO's Human Capital Challenges

Broadbanding system for mission staff
Noncompetitive hiring authority (e.g., internship, critical skills programs)
Special pay rates
Positions at Senior Level for technical staff
Targeted early outs and buyout authority
Revised Reduction in Force (RIF) rules

Regarding our own IT and other technical staff, we have taken a number of steps to address our workforce needs, including the following:

- Using a 25-percent pay differential (equal to the OPM pay differential for executive branch IT hires) to bring aboard entry-level technical staff for our IT team.
- Offering pay bonuses in attracting and retaining workers for hard-to-fill positions, such as IT positions requiring specific technical skills.
- Making wide use of contractor resources in the IT area to supplement both the numbers and skills of government employees. Currently, about 60 percent of the staff supporting GAO internal IT operations and initiatives are contractor staff. Given staffing constraints and market conditions, we have found this arrangement to work very well. We focus our training of in-house staff on project management, contract management, and technical training to ensure sound project management and oversight of the contractors. Using contractor resources has given us the ability to quickly bring on staff with the IT skills needed to carry out new projects/initiatives.
- Using the authority that the Congress provided in our 2000 legislation to create Senior Level positions to meet certain scientific, technical, and professional needs and to extend to those positions the rights and benefits of SES employees. One of the areas targeted was IT. We recently established four new Senior Level technical IT positions and provided

other specialists—such as our Chief Statistician and Chief Accountant—with new titles and SES-equivalent benefits.

We believe that three of the authorities provided in our 2000 legislation may be appropriate to other agencies and are worth congressional consideration at this time. Authority to offer voluntary early retirement and voluntary separation incentives could give agencies additional flexibilities with which to realign their workforces, correct skills imbalances, and reduce high-grade, managerial, or supervisory positions without reducing their overall number of employees. Further, the authority to establish Senior Level positions could help agencies become more competitive in the job market, particularly in critical scientific, technical, or professional areas, such as IT.

Reform Implementation Faces Challenges

Implementing reforms in human capital management will present significant challenges. Among most difficult will be (1) the sustained commitment demanded from the executive and legislative branch leaders, including agencies, the Office of Management and Budget (OMB), the Office of Personnel Management (OPM), and Congress, and (2) the cultural transformation that will be required by a new approach to human capital management.

In its report on IT human capital, NAPA also recognizes the importance of these two factors. The report identifies a number of steps that would be required for implementation of a new system (see figure 2). Among these, NAPA includes the need to promote leadership by identifying champions for the new system within agencies. Further, NAPA acknowledges in its discussion that implementing its recommendations will challenge the existing culture of many agencies, and it recommends change management and training efforts for both managers and employees.

Figure 2: NAPA's Suggested Actions for Implementation of its Recommendations

Identify champions for the new system in the political and career leadership of each agency.
Translate the report recommendations into legislative and programmatic action items.
Translate the legislative and programmatic decisions into detailed agency-by-agency action items.
Develop communications and education strategies.
Develop a detailed plan to carry out these strategies.
Provide sufficient funding for both the system and the implementation activities.

We agree that the steps that NAPA describes are essential elements for an effective implementation strategy. We have, for example, identified six elements that our work suggests are particularly important in implementing and sustaining management improvements that actually resolve the problems they address.[19] These elements are (1) a demonstrated leadership commitment and accountability for change; (2) the integration of management improvement initiatives into programmatic decisionmaking; (3) thoughtful and rigorous planning to guide decisions, particularly to address human capital and information technology issues; (4) employee involvement to elicit ideas and build commitment and accountability; (5) transforming organizational culture and aligning organizations to streamline operations and clarify accountability; and (6) strong and continuing congressional involvement. I would like to particularly highlight leadership and transforming organizational culture, two of the key elements in implementing such reforms.

Implementation Will Require Sustained, Committed Leadership

The sustained commitment of leaders within the executive and legislative branches is essential to the success of any implementation. The key players in the human capital area—agency leaders, OPM, OMB, and the Congress—all need to be actively involved in leading and creating change.

Agency Leaders Need to Focus on Human Capital

As we have previously testified, the key change for agency leaders who hope to improve their agencies' human capital management is to focus on people as a strategic asset.[20] To create a workforce that shares the agency's vision and is aware of the contribution that each employee can make toward achieving it, the agency's senior leaders must convey this vision clearly and consistently throughout the organization by their words and deeds and the example they set. Political appointees and career managers may bring differing values to the team, but they must work at building mutual understanding and trust and at committing themselves to a shared set of goals for their agency. An essential step in achieving these goals is to create an effective workforce. Senior leadership need to ensure that their agencies are determining their current and future workforce needs, assessing how their current and anticipated future workforce

[19] *Management Reform: Elements of Successful Improvement Initiatives* (GAO/T-GGD-00-26, Oct. 1999).

[20] *Human Capital: Meeting the Governmentwide High-Risk Challenge* (GAO-01-357T, Feb. 2001).

compares with these needs, and developing effective strategies to fill the gaps.

A useful tool for assessing overall human capital management is GAO's human capital framework, which identifies a number of human capital elements and underlying values that are common to high-performing organizations.[21] As our framework makes apparent, agencies must address a range of interrelated elements to ensure that their human capital approaches effectively support mission accomplishment. Although no single recipe exists for successful human capital management, high-performing organizations recognize that all human capital policies, practices, and investments must be designed, implemented, and assessed by the standard of how well they support the organization's vision of what it is and where it wants to go.

OPM and OMB Must Be Leaders in Human Capital Management

We have previously reported on the crucial roles that OPM and OMB play in human capital management.[22] OPM's responsibility is to work with agencies to create systems to effectively recruit, develop, manage, and retain a high-quality and diverse workforce, and to regulate these systems. In this capacity, OPM has been emphasizing to agencies the importance of integrating strategic human capital management into agency planning.[23] Among other things, OPM has brought attention to the need to integrate human capital professionals into agencies' planning processes.[24] OPM has also taken three steps to alleviate specific IT human capital challenges: it has established special salary rates for IT professionals (as well as scientists and engineers), it has issued a new classification standard for IT specialist positions, and it has piloted a new approach to establishing and assessing qualifications for IT work. OPM has also been focusing more attention on developing tools to help agencies. For example, it is developing a workforce planning model, with associated research tools,

[21] *Human Capital: A Self-Assessment Checklist for Agency Leaders* (GAO/OCG-00-14G, Sep. 2000).

[22] *Human Capital: Meeting the Governmentwide High-Risk Challenge* (GAO-01-357T, Feb. 2001).

[23] See OPM's *Strategic Human Resources Management: Aligning With the Mission* (U.S. Office of Personnel Management, Sep. 1999).

[24] See *The HR Workforce: Meeting the Challenge of Change* (U.S. Office of Personnel Management, Jan. 2000). See also *A Call to Action: A Coalition on the Future of the Federal Human Resource Management Profession* (Federal Section of the International Personnel Management Association, Sep. 2000).

and has launched a Web site on workforce planning issues to facilitate information sharing. Further, OPM recently revised the SES performance management regulations so that in evaluating executive performance, agencies will use a balanced scorecard of customer satisfaction, employee perspectives, and organizational results.

In prior testimony, we have pointed out that OPM could make substantial additional contributions by taking advantage of its ability to facilitate information-sharing on best practices among human capital managers throughout the federal government.[25] In short, OPM should continue to move from "rules to tools"; its most valuable contributions will come less from traditional compliance activities than from its initiatives as a strategic partner to the agencies.

Like OPM, OMB has increased its efforts to promote strategic human capital management. OMB's role in setting governmentwide management priorities and defining resource allocations is critical to encouraging agencies to integrate strategic human capital management into their core business processes. In this role, OMB recently released the FY2002 President's Management Agenda, which provides the President's strategy for improving the management and performance of the federal government.[26] The report identifies strategic management of human capital as an area for governmentwide improvement. In line with suggestions we have made, OMB is expecting agencies to take full advantage of existing authorities to better acquire and develop a high quality IT workforce. OMB also wants agencies to redistribute staff to front-line service delivery and reduce the number of organizational layers as they make better use of IT systems capabilities and knowledge sharing. Also, OMB's Circular No. A-11 guidance on preparing annual performance plans states that agencies' fiscal year 2002 annual performance plans should set goals in such areas as recruitment, retention, training, appraisals linked to program performance, workforce diversity, streamlining, and family-friendly programs.

What is now required is the sustained and forceful leadership to make the promise of these initiatives a reality. Important areas for attention include

[25] *Human Capital: Meeting the Governmentwide High-Risk Challenge* (GAO-01-357T, Feb. 2001).

[26] *President's Management Agenda for Fiscal Year 2002* (Office of Management and Budget, August 2001).

benchmarking and best practices efforts within the executive branch and greater attention during resource allocation to the links between agency missions and the human capital needed to pursue them.

Congressional Leadership Will Be Critical to Improving Human Capital Governmentwide

We have previously noted that leadership on the part of Congress will be critical if governmentwide improvements in strategic human capital management are to occur.[27] To raise the visibility of the human capital issue and move toward a consensus on legislative reforms, both parties in both houses of Congress must stress commitment to people as an urgent federal management concern. Among the most encouraging developments in this regard have been the efforts of this Subcommittee to draw attention to human capital issues.

Congress has opportunities available through its confirmation, oversight and appropriations, and legislative roles to ensure that agencies recognize their responsibilities and have the needed tools to manage their people for results. For example, Congress can draw wider attention to the critical role of human capital in the confirmation process, during which the Senate can make clear its commitment to sound federal management and explore what prospective nominees plan to do to ensure that their agencies recognize and enhance the value of their people.[28]

As part of the oversight and appropriations processes, Congress can examine whether agencies are effectively managing their human capital programs. It can also encourage more agencies to use the flexibilities available to them under current law and to reexamine their approaches to strategic human capital management in the context of their individual missions, goals, and other organizational needs.

Further, Congress can play a defining role in determining the scope and appropriateness of additional human capital flexibilities that agencies may seek through legislation. When agencies request legislative exceptions from current civil service constraints, Congress can require that they make a sound business case based on rational and fact-based analyses of their

[27] *Human Capital: Meeting the Governmentwide High-Risk Challenge* (GAO-01-357T, Feb. 2001).

[28] Toward this end, we have developed a set of questions for political appointees that the Senate may use during the confirmation process. See *Confirmation of Political Appointees: Eliciting Nominees' Views on Leadership and Management Issues* (GAO/GGD-00-174, Aug. 2000).

needs, the constraints under which they presently operate, and the flexibilities available to them. For example, before we submitted human capital legislative proposals for GAO last year, we made sure not only to identify in our own minds the human capital flexibilities that we needed, but also to give Congress a clear indication of our needs, our rationale, and the steps we were taking to maximize benefits and manage risks.

Ultimately, Congress may wish to consider comprehensive legislative reform in the human capital area to give agencies the tools and reasonable flexibilities they need to manage effectively while retaining appropriate safeguards. As part of this effort, Congress may also wish to consider the extent to which traditional "civil service" approaches—structures, oversight mechanisms, rules and regulations, and direction-setting—make sense for a government that is largely a knowledge-based enterprise that has adopted and is now implementing modern performance management principles.

Organizational Cultures Will Require Change

Another critical challenge for implementing any reform is addressing needed changes in prevailing organizational cultures. As we have noted in previous testimony, a cultural transformation will be key for a successful transition to a new approach to human capital management.[29] A culture of hierarchical management approaches will need to yield to one of partnerial approaches; process-oriented ways of doing business will need to yield to results-oriented ones; and organization "silos" will need to become integrated. Although government organizations have often proven to be slow to make these kinds of cultural changes, agencies that expect to make the best use of their human capital will need to create a culture that strongly emphasizes performance and supports employees in accomplishing their missions. Such a culture will include appropriate performance measures and rewards and a focus on continuous learning and knowledge management.

Organizational performance problems are often linked to organizational culture. For example, a "siloed" culture at the Federal Aviation Administration was one of several underlying causes of acquisition problems in the agency's multibillion-dollar modernization program, which has experienced cost overruns, schedule delays, and significant

[29] *Human Capital: Meeting the Governmentwide High-Risk Challenge* (GAO-01-357T, Feb. 2001).

performance shortfalls.[30] Cultural issues have also been linked to long-standing security problems at Department of Energy weapons laboratories, and to intractable waste, fraud, abuse, and mismanagement problems in the Social Security Administration's high-risk Supplemental Security Income program.[31] Overcoming such problems requires overcoming the barriers that result from an entrenched organizational culture.

Implementing new approaches to human capital management will require agency leaders and managers to steer their organizational cultures in a new direction. A number of tools and strategies are available for this purpose, including modern performance management and incentive approaches—directed at either individuals or teams—to help empower and motivate staff, reward high performance, and ensure accountability. (For example, our study on the use of executive performance agreements found that despite variations among agencies reflecting differing agency goals and priorities, such agreements produce a consistent range of benefits, including strengthening alignment of goals with daily operations and fostering collaboration across organizational boundaries.[32]) Since the 1995 revision of the federal government's performance appraisal and rewards policies, agencies have more flexibility than previously to develop and (with OPM approval) implement performance appraisal systems to meet their specific goals and needs. Such flexibility is important as agencies try to establish a "line of sight" between individual employees and agency goals and objectives. The effort required is not trivial: agencies we have studied have struggled to link employee performance expectations to agency goals.[33] Further, many agencies have reported that they do not know whether their incentive programs are effectively motivating their employees.[34] These problems underscore the need for

[30] *Major Management Challenges and Program Risks: Department of Transportation* (GAO-01-253, Jan. 2001).

[31] *Major Management Challenges and Program Risks: Social Security Administration* (GAO-01-261, Jan. 2001).

[32] *Managing for Results: Emerging Benefits From Selected Agencies' Use of Performance Agreements* (GAO-01-115, Oct. 2000).

[33] *Managing for Results: Using GPRA to Assist Oversight and Decisionmaking* (GAO-01-872T, June 2001).

[34] *Human Capital: Using Incentives to Motivate and Reward High Performance* (GAO/T-GGD-00-118, May 2000).

innovation and flexibility in human capital management, as well as continual efforts to capture data not only on employee performance, but also on the effectiveness of agencies' efforts at human capital management.

In summary, Mr. Chairman, designing, implementing, and maintaining effective human capital strategies for all federal workers, but particularly for the IT workforce, will be critical to achieving the goals of maximizing the performance and ensuring the accountability of the federal government. In a performance management environment where federal agencies are held accountable for delivering improvements in program performance, the "people dimension" is of paramount importance. Overcoming human capital management challenges will determine how successfully the federal government can build, prepare, and manage its workforce.

Mr. Chairman, this concludes my statement. I would be pleased to respond to any questions that you or other members of the Subcommittee may have at this time.

Contacts and Acknowledgements

For further information regarding this testimony, please contact me at (202) 512-6240 or by email at *mcclured@gao.gov*. Individuals making key contributions to this testimony included Barbara Collier and Margaret Davis.

Ordering Information

The first copy of each GAO report is free. Additional copies of reports are $2 each. A check or money order should be made out to the Superintendent of Documents. VISA and MasterCard credit cards are also accepted.

Orders for 100 or more copies to be mailed to a single address are discounted 25 percent.

Orders by mail:
U.S. General Accounting Office
P.O. Box 37050
Washington, DC 20013

Orders by visiting:
Room 1100
700 4th St., NW (corner of 4th and G Sts. NW)
Washington, DC 20013

Orders by phone:
(202) 512-6000
fax: (202) 512-6061
TDD (202) 512-2537

Each day, GAO issues a list of newly available reports and testimony. To receive facsimile copies of the daily list or any list from the past 30 days, please call (202) 512-6000 using a touchtone phone. A recorded menu will provide information on how to obtain these lists.

Orders by Internet
For information on how to access GAO reports on the Internet, send an e-mail message with "info" in the body to

Info@www.gao.gov

or visit GAO's World Wide Web home page at

http://www.gao.gov

To Report Fraud, Waste, and Abuse in Federal Programs

Contact one:

- Web site: http://www.gao.gov/fraudnet/fraudnet.htm
- E-mail: fraudnet@gao.gov
- 1-800-424-5454 (automated answering system

PRINTED ON RECYCLED PAPER